CLAIMS

1. A method for stimulating living tissue(s), comprising the steps of:

producing a first stimulator pulse with a first pulse generator;

delivering the first stimulator pulse to the living tissue(s) through electrodes electrically coupled to the stimulator with at least one lead, and wherein at least one blocking capacitor electrically coupled to the first pulse generator the provides a net zero current flow through the living tissues(s);

generating a reverse pulse that discharges the at least one blocking capacitor in order to shorten the at least one blocking capacitor's discharge period; and

producing a subsequent stimulator pulse with the pulse generator, wherein the subsequent stimulator pulse is delivered to the living tissue(s) at the end of the at least one capacitor's shortened discharge period.

2. The method of Claim 1, wherein the reverse pulse is generated by a second pulse generator.

3. The method of Claim 1, wherein the first stimulator pulse and the reverse pulse are assymetrical.

4. The method of Claim 1, wherein an absolute total charge delivered by the first stimulation pulse equals an absolute total charge delivered by the reverse pulse.

5. The method of Claim 1, wherein a switching network operates on the output of the first pulse generator to generate the reverse pulse.

6. The method of Claim 5, wherein the switching networks reverse electrical connections to output nodes of the first pulse generator.

7. The method of Claim 1, wherein stimulator pulses are applied to the living tissue(s) at a frequency greater than about 250 Hz without building charge on the at least one blocking capacitors.

8. The method of Claim 1, wherein the discharge period is equal to or less than the stimulator pulses' pulse width.

9. The method of Claim 1, wherein the steps are repeated with the subsequent stimulator pulse becoming the first stimulator pulse in order to produce high frequency stimulation pulses.

10. The method of Claim 1, wherein the living tissue(s) comprise spinal cord tissues and wherein the stimulator pulses applied to the spinal cord tissues manage pain.

11. The method of Claim 1, further comprising the step of implanting the first pulse generator, at least one lead, at least one blocking capacitor and electrodes within a living organism.

12. The method of Claim 1, wherein the living tissue(s) comprise at least one nerve bundle.

13. A neurostimulator, comprising:

a first pulse generator that outputs a first stimulator pulse;

at least one blocking capacitor electrically coupled to the first pulse generator output, wherein the at least one blocking capacitor is electrically coupled to the first pulse generator in order to provide a net zero current flow through living tissues, and wherein a reverse pulse discharges the at least one blocking capacitor in order to shorten the at least one blocking capacitor's discharge period; and

at least one implanted lead electrically coupled to the output of the pulse generator that delivers the first stimulator pulse to electrodes proximate to living tissue to be stimulated, and wherein a subsequent stimulator pulse generated by the first pulse generator is delivered to the living tissue when the at least one blocking capacitor's discharge period is complete.

14. The neurostimulator of Claim 13, wherein the reverse pulse is generated by a second pulse generator.

15. The neurostimulator of Claim 13, further comprising a switching network that reverses electrical connections to output nodes of the first pulse generator to produce the reverse pulse.

16. The neurostimulator of Claim 13, wherein the first stimulator pulse and the reverse pulse are assymetrical.

17. The neurostimulator of Claim 13, wherein an absolute total charge delivered by the first stimulation pulse equals an absolute total charge delivered by the reverse pulse.

18. The neurostimulator of Claim 13, wherein stimulator pulses are applied to the living tissue(s) at a frequency greater than about 250 Hz without building charge on the at least one blocking capacitors.

19. The neurostimulator of Claim 13, wherein the discharge period is equal to or less than the stimulator pulses' pulse width.

20. The neurostimulator of Claim 13, wherein the subsequent stimulator pulse becomes the first stimulator pulse in order to produce high frequency stimulation pulse patterns.

21. The neurostimulator of Claim 13, wherein the living tissue comprises spinal cord tissues and wherein the stimulator pulses applied to the spinal cord tissues manage pain.

22. The neurostimulator of Claim 13, wherein the first pulse generator, at least one lead, at least one blocking capacitor and electrodes are implantable within a living organism.

23. An implantable neurostimulator, comprising:

a first pulse generator that outputs a first stimulator pulse and a reverse stimulator pulse, wherein an absolute total charge delivered by the first stimulation pulse equals an absolute total charge delivered by the reverse pulse; and

at least one blocking capacitor electrically coupled to the first pulse generator outputs, wherein the at least one blocking capacitor provides a net zero current flow through living tissues, and wherein a reverse pulse is applied to and discharges the at least one blocking capacitor in order to shorten the at least one blocking capacitor's discharge period.

24. The implantable neurostimulator of Claim 23, wherein the implantable stimulator electrically couples to at least one implanted lead in order to deliver the first stimulator pulse to electrodes proximate to living tissue, and wherein a subsequent stimulator pulse generated by the first pulse generator is delivered to the living tissue when the at least one blocking capacitor's discharge period is complete.

25. An implantable neurostimulator, comprising:

a first pulse generator that outputs a first stimulator pulse;

a second pulse generator that outputs a reverse stimulator pulse, wherein an absolute total charge delivered by the first stimulation pulse equals an absolute total charge delivered by the reverse pulse; and

at least one blocking capacitor electrically coupled to the first pulse generator's and second pulse generator's outputs, wherein the at least one blocking capacitor provides a net zero current flow through living tissues, and wherein a reverse pulse is applied to and discharges the at least one blocking capacitor in order to shorten the at least one blocking capacitor's discharge period.

26. The implantable neurostimulator of Claim 25, wherein the implantable stimulator electrically couples to at least one implanted lead in order to deliver the first stimulator pulse to electrodes proximate to living tissue to be stimulated, and wherein a subsequent stimulator pulse generated by the first pulse generator is delivered to the living tissue when the at least one blocking capacitor's discharge period is complete.

27. The implantable neurostimulator of Claim 25, wherein the first stimulator pulse and reverse stimulator pulse differ in pulse width and/or pulse anplitude.

28. An implantable neurostimulator that stimulate tissues with a high frequency stimulation pulse pattern, comprising:

a first pulse generator, having a first positive node and a first negative node;

a second pulse generator, having a second positive node and a second negative node;

an array of electrodes implanted proximate to one or more nerve bundles;

an array of capacitors;

a switching circuit coupled to the array of electrodes and the array of capacitors, wherein the switching circuit delivers a stimulation pulse to the one or more tissues, and wherein the stimulation pulse builds charge on the array of capacitors; and wherein the switching circuit actively discharges the array of capacitors with a reverse pulse.

29. The implanatable neurostimulator of Claim 28, further comprising:

a charge integrator, the charge integrator determining the total amount of charge delivered to the one or more tissues for a given pulse.

30. The implanatable neurostimulator of Claim 28, wherein the absolute value of a total charge delivered by the stimulation pulse equals the absolute value of a total charge delivered by the reverse pulse.

31. The implanatable neurostimulator of Claim 28, wherein the stimulation pulse is a constant voltage pulse.

32. The implanatable neurostimulator of Claim 28, wherein the stimulation pulse is a constant current pulse.

33. The implanatable neurostimulator of Claim 28, wherein an amplitude of the reverse pulse has a lower absolute amplitude than an amplitude of the stimulation pulse.

34. The implanatable neurostimulator of Claim 28, wherein a width of the reverse pulse is greater than a width of the stimulation.